REMARKS/ARGUMENTS

Claims 9, 10 and 12 are pending in this application. Claim 9 has been amended. No new matter has been added by the amendment of claim 9.

Personal Interview

Applicants extend their appreciation to the Examiner for granting a personal interview in the above-identified application. In the interview, the rejection of claim 9 was discussed with respect to the reference of record, Zou et al. Following the interview, Applicants have decided to file a Request for Continued Examination and to amend claim 9 to include support for the arguments made with respect to the differences between the invention as set forth in claim 9 and Zou. Accordingly, Applicants request reconsideration of the final rejection for the following reasons.

Claim Rejections under 35 U.S.C. §§102 and 103

Claims 9 and10 have been rejected under 35 U.S.C. §102(e) as being anticipated by Zou et al. (Zou). Further, claim 12 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Zou et al '563 in view of Ishikawa et al '343. Reconsideration of the rejections is respectfully requested.

Amended claim 9 includes the effect of the second step of heating, i.e. in order to increase coercivity and reduce stacking fault density of the magnetic recording medium. Support for the amendment is provided for in the originally filed application. In particular, as shown in Fig. 10, the second step of heating is carried out with a heating temperature no higher

than 250°C, which results in increased coercivity and reduced stacking fault density of the magnetic recording medium. See page 20, lines 13-17 of the English language specification. Accordingly, amended claim 9 is not disclosed or suggested by Zou.

Applicants' position with respect to Zou is of record. Mainly, the reference discloses a magnetic recording medium 10 having a substrate 12, underlayer and Zn containing layer 14 and Co containing magnetic layer 16. The magnetic layer 16 is sputter deposited on substrate 12 after preheating the substrate to 250 °C (see col. 14, lines 26-29). Higher coercivity is obtained, as compared to a magnetic recording medium in which the substrate is not preheated (*see*, col. 14, lines 29-31 of Zou). Further, Zou et al. disclose that the preheated substrate cools to below 250 ° C (col. 15, lines 41-47), resulting in ineffective diffusion of the Zn to the magnetic layers. Zou et al. disclose that post deposition annealing is preferred for promoting preferential Zn diffusion to the grain boundaries (col. 14, lines 42-45). In the annealing steps that are disclosed, the annealing temperature is varied form 250 °C to 450° C. There is no disclosure of an annealing step at a temperature no higher than 250 °C. See col. 17, lines 17-20. Accordingly, there is no disclosure in the reference of the claimed second step of heating that is carried out with a heating temperature no higher than 250°C.

The invention of claim 9 includes a cobalt–containing magnetic layer formed on a substrate either directly or with an intervening under layer and in which the magnetic layer is heated in a first step. Then, a protective layer is formed on the magnetic layer and a second step of heating is performed of the formed layers under atmospheric pressure at a temperature no higher than 250°C. *See*, the procedure of Example 2, which is the same as that of Example 1, except that annealing is carried out at a low temperature, i.e. no higher than 250°C.

As explained in the specification, it is impractical from a manufacturing viewpoint to hold the magnetic recording media in a sputtering vacuum chamber after the layers are formed for the annealing process. Accordingly, the magnetic recording media are removed from the vacuum chamber. Before removing the recording media from the vacuum chamber, however, a protective film is formed on the magnetic layer to protect the film from oxidation. To prevent the protective film from diffusing into the magnetic film during the annealing step, the heating step is carried out without exceeding 250°C. *See*, page 19, lines 14-23 of the specification, for example, which discusses that when the protective film is made of a carbonaceous material, the heating of the layers is conducted at a temperature below 250°C to prevent the protective film from diffusing into the magnetic film. In Example 2 set forth in the specification, the sample (after film formation) is heated in a constant temperature oven at 220°C for eight hours.

Zou also discloses the formation of a protective film on a magnetic recording medium which is, for example, a CrTi protection overcoat layer (see col. 17, lines 1-6 of Zou). After the film formation, the reference discloses post-deposition rapid thermal annealing. Specifically, Zou discloses that thermal annealing experiments were conducted at temperatures in the range of 250°C to 450°C. Figure 3 of Zou shows the coercivity Hc and magnetization Ms as functions of the annealing temperature. In order to achieve the objects of the invention disclosed by Zou, the annealing temperature is required to be greater than 250°C, which is outside the range of the heating temperature claimed by Applicants in the comparable second step of heating set forth in claim 9.

As mentioned in the Office Action, Zou discloses a heating step in column 15, lines 43-44 that occurs at temperatures less than 250°C. However, the heating disclosed in this step

is equivalent to the preheating of the media in preparation for the step of forming the magnetic film and the deposition of the other layers. See column 15, lines 39-41 of Zou, for example, which describes preheating the substrate which leads to deposition of layers occurring at temperatures of less than 250°C. Accordingly, Zou does not disclose the claimed second step of heating set forth in claim 9, and therefore the 35 U.S.C. 102(e) rejection of claims 9 and 10 as being anticipated by Zou should be withdrawn.

Ishikawa is relied upon for disclosing the formation of a protective layer as a carbonaceous material, referring to column 8, lines 37-56 of the reference. However, assuming that one having skill in the art would combine the teachings of Zou and Ishikawa, the combined teachings do not overcome the deficiencies in Zou with respect to the second step of heating that is carried out with a heating temperature of no higher than 250°C. That is, the disclosure of Ishikawa does not overcome the deficiency in Zou with respect to the invention set forth in claim 9, from which claim 12 depends. Accordingly, the 35 U.S.C. §103(a) rejection should be withdrawn.

CONCLUSION

In view of the foregoing, Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.

By _____
John R. Mattingly
Reg. No. 30,293
(703) 684-1120

JRM/so
Date: July 10, 2006